



# Beware of the Misinterpretations of the CAPE Ratio

April 2, 2018

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With the Shiller CAPE 10 ratio having risen above 31, more and more investors are becoming worried about both the outlook for future equity returns and the possibility of mean reversion in valuations, which could lead to a bear market.

The concern about future returns is justified by the fact that, while the academic research shows valuations are an extremely poor forecaster of stock returns in the short term, they are the best predictor of long-term returns. A CAPE 10 of 31 translates into a real-return forecast for U.S. stocks of less than 3%. Add in 2 percentage points for expected inflation and you get a nominal return of about 5%, half the size of the historical return. Let's look at some of the evidence.

In his November 2012 white paper, "An Old Friend: The Stock Market's Shiller P/E" Cliff Asness showed that 10-year forward average real returns fall nearly monotonically as starting Shiller CAPE 10 ratios increase.

In addition, as the starting CAPE 10 increases, worst cases get worse and best cases get weaker (the entire distribution of returns shifted to the left). However, there were still very wide dispersions of returns. For example, even when the CAPE 10 ratio was above 25, the best 10-year real return was 6.3%, less than 1 percentage point below the historical average. Such wide dispersions explain why the CAPE 10, while it provides information on future returns, should not be used as a tool to time the markets.

Javier Estrada came to the same conclusion in his study, "Multiples, Forecasting, and Asset Allocation," which was published in the Summer 2015 issue of the Journal of Applied Corporate Finance. He examined the benefits of using valuations as a tactical asset allocation tool and found "the evidence does not support the superiority of valuation-based strategies; if anything, it points moderately in the opposite direction."

While U.S. equity valuations clearly are at historically high levels, is the outlook as bleak as it seems? Perhaps not. Let's see why that is the case.

## Changing standards

To begin, in 2001, the Financial Accounting Standards Board changed its rules regarding how goodwill is written off.

As a post on the blog Philosophical Economics explained: "In the old days, GAAP required goodwill amounts to be amortized—deducted from earnings as an incremental non-cash expense—over a forty-year period. But in 2001, the standard changed. FAS 142 was introduced, which eliminated the amortization of goodwill entirely. Instead of amortizing the goodwill on their balance sheets over a multi-decade period, companies are now required to annually test it for impairment. In plain English, this means that they have to examine, on an annual basis, any corporate assets that they've acquired, and make sure that those assets are still reasonably worth the prices paid. If they conclude that the assets are not worth the prices paid, then they have to write down their goodwill. The requirement for annual impairment testing doesn't just apply to goodwill, it applies to all intangible assets, and, per FAS 144 (issued a couple months later), all long-lived assets."

While FAS 142 may have introduced a more accurate accounting method, it also created an inconsistency in earnings measurements. Present values end up looking much more expensive relative to past values than they actually are. And the difference is quite dramatic. Adjusting for the accounting change would put the CAPE 10 about 4 points lower.

Relying on the CAPE 10's long-term historical mean as a yardstick for stock valuations is problematic for another reason: There has been a dramatic change in dividend policy, with fewer companies paying dividends now than in the past.

For example, in the 2001 study 'Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay?', authors Eugene Fama and Kenneth French found that companies paying cash dividends fell from 67% of firms in 1978 to

21% in 1999.

The figure is higher today as the number of public companies has fallen by almost half, with most of the decline coming from very small companies, which tend to not pay dividends. That said, the dividend payout ratio on the S&P 500 dropped from an average of 52% from 1954 through 1995 to an average of just 35% since then. As of September 2017, the payout ratio on the S&P 500 was about 45%.

In theory, higher earnings retention should result in faster earnings growth as firms reinvest that retained capital (or buy back shares). That has been the case for this particular period. From 1954 to 1995, the growth rate in real earnings per share averaged 1.7%; from 1995 to 2017, it averaged 3.3%.

To make comparisons between present and past values of the CAPE 10, any differences in payout ratios must be normalized. The adjustment between the 52% payout ratio (the average from 1954 through 1995) and the 35% payout ratio (the average from 1996 through 2017) corresponds to approximately a 1-point difference on the CAPE 10. Using the current payout ratio would lead to a smaller adjustment of about 0.5.

### **Nothing magical about the CAPE 10**

In their classic 1934 book, "Security Analysis," Benjamin Graham and David Dodd noted that traditionally reported price/earnings ratios can vary considerably because earnings are strongly influenced by the business cycle. To control for cyclical effects, they recommended dividing price by a multiyear average of earnings, and suggested periods of five, seven or 10 years.

Then, in a 1988 paper, economists John Campbell and future Nobel Prize-winner Robert Shiller, using a 10-year average, concluded that a long-term average provides information in terms of future returns. This gave further credibility to the concept, and led to the popular use of the CAPE 10 ratio.

However, as Graham and Dodd observed, there's really nothing special about using the 10-year average. Other time horizons also provide information on future returns. With that in mind, I'll analyze how changing the horizon can impact our view of the market's valuation.

While the current CAPE 10 is about 34, the current CAPE 8, which has approximately the same explanatory power as the CAPE 10 but excludes the very bad and temporarily depressed earnings figures from 2008 and 2009, is about 31.

If we use the CAPE 8 of 31, and then make the adjustments for accounting changes and dividend reduction, we get what we might call an adjusted CAPE 8 of about 26. That provides a real return forecast of 3.8%, close to 1 percentage point higher than when using the current CAPE 10. That's the good news. The bad news is that it still leaves you with an expected U.S. stock return well below historical levels, and probably well below the expectations of most investors.

There's one more issue we need to cover.

### **Highly valued is not the same as overvalued**

While even a CAPE 10 ratio of 26 would be historically high (the long-term mean of the CAPE 10 is about 17), that doesn't necessarily mean the market is overvalued—just highly valued, with lower expected returns. Let's see why that is the case.

The CAPE 10 goes all the way back to 1880. The data includes economic eras in which the world looked very different to investors than it does today. Consider just two examples. For a significant part of the period, there was neither a Federal Reserve to dampen economic volatility nor an SEC to protect investor interests. Both of these organizations have helped make the world a safer place for investors, justifying a lower equity risk premium and thus rising valuations. In addition, we have not experienced another Great Depression, and there haven't been any worldwide wars since 1945.

Another reason for the CAPE 10 rising over time is that the U.S. has become a much wealthier country since 1880. As wealth increases, capital becomes less scarce. All else equal, less scarce assets should become less expensive. The data supports this hypothesis.

A third reason for a rising CAPE 10 is that investors demand a premium for taking liquidity risk (less-liquid investments tend to outperform more-liquid investments). All else equal, investors prefer greater liquidity. Thus, they demand a risk premium to hold less-liquid assets.

Over time, the cost of liquidity, in the form of bid/offer spreads, has decreased. There are several reasons for this, including

the decimalization of stock prices and the additional liquidity provided by high-frequency traders. Furthermore, the cost of commissions has collapsed. Other implementation costs, in the form of index mutual funds and ETFs' much lower expense ratios, also have fallen, meaning investors are capturing more of the gross return to stocks, justifying higher valuations.

Summarizing, the important point to remember is that, if higher valuations are justified by systematic changes that make equity investing less risky/less costly, while they may forecast lower future returns, they aren't necessarily signaling overvaluation.

With the 10-year TIPS (a benchmark for a riskless rate of return for a long-term investor) at about 0.6%, and a 3.8% expected real return to stocks, we have an equity risk premium (against that benchmark) of about 3.2%. No one knows if that is an appropriate return or not for the risk of equities. It's just lower than the historical return. Thus, it seems hard to make the case that equities are overvalued.

## **Conclusions**

The outlook for returns for international equities is somewhat better than it is for U.S. stocks. At year-end 2017, the U.S. CAPE 10 earnings yield, which provides the real return forecast, was 3.1%. For developed non-U.S. markets, it was 5.1%, and for emerging markets it was 6.3%. All three figures are now lower given the very strong returns we have had to start the year.

Investors should not be using stock valuations to time the market. However, it is important for investors to take into account higher valuations (and lower bond yields) when they forecast future expected returns and build plans based on those forward-looking estimates. What rates of return are you assuming in your plan?

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